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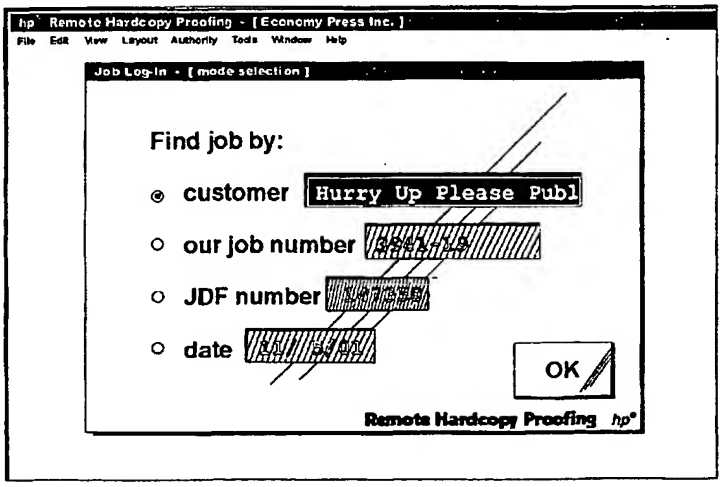
(54) A remote proofing computer system and method

(57) Conventional obstacles to entry and survival of small graphic-arts service providers are softened — particularly for those businesses that operate as computerized "ASP" enterprises (21-25) involving wide-area networks — by encouraging small operators to coexist effectively in use of a pivotal network-based service. One key mechanism promoting this capability is a system of optionally mutual links (Figs. 13-15; lower half of Figs. 2, 7, 12 and 16-27) between the pivotal service (11) and the ASPs. The service also counteracts a tendency in the industry to favor wastefully redundant vertical integration. On the other hand, the system also implements the prerogatives of an enterprise (such as a printing-broker ASP, 24) that has an established customer, to closely channel the attention of that customer — but subject, importantly, to being overruled by the customer. Ideally the system is carefully tuned to enable such customer action without unduly pressing the option upon the customer.

Fig. 3



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Description

RELATED PATENT DOCUMENTS

[0001] Closely related documents are other, coowned U. S. utility-patent applications filed in the U. S. Patent and Trademark Office — and hereby incorporated by reference in their entirety into this document. Two are copending U. S. provisional applications of Such et al., serials 60/294,925 and 60/316,945, whose priority benefit is hereby claimed. A third is in the names of Jodra et al., serial 09/832,638, later issued as U. S. Patent 6,_____,_____. A fourth is in the names of Vilanova et al., 09/945,492, later U. S. 6,_____,_____. A fifth is in the names of Soler et al., serial 09/919,260, later U. S. 6,_____,_____ — together with references cited therein. A sixth is in the names of Subirada et al., serial 09/919,207, later U. S. 6,_____,_____. A seventh is attorney docket 60013597Z152 in names of Gonzalez et al., titled "REMOTE HARDCOPY PROOFING SERVICE ADAPTIVELY ISOLATED FROM THE INTERNET", in preparation concurrently herewith, and later U. S. 6,_____,_____. Also potentially of interest and wholly incorporated herein are U. S. 6,043,909 and 6,157,735 of Richard A. Holub.

FIELD OF THE INVENTION

[0002] This invention relates generally to remote hardcopy proofing; and more particularly to integration of business systems and procedures for remote hardcopy proofing of printing jobs including color images. Preferred embodiments include integrated features for incorporating the efficiencies and consumer benefits of electronic commerce and advanced technology into buying, soft proofing and data transfer for such printing jobs. Preferred embodiments are especially effective in association with closed-loop-color proofing.

BACKGROUND OF THE INVENTION

[0003]

(a) Classical relationships in the industry — Classical participants in the printing or so-called "graphic arts" industry generally fell into these categories:

- a primary customer or client — i. e., a publisher or other entity that wished to have printed goods for its own purposes, ranging from advertising to fiction, technical data or poetry;
- a printing house, which physically produced the final printed goods — and which could vary from a neighborhood family "instant printer" business to a giant international producer of fine-quality books and magazines;
- a prepress entity, which could be a free-standing business serving small printing houses or could be a department or makeready room within a large printing house — and whose function was to receive camera-ready copy and sometimes raw text copy (manuscript) to be typeset, and from these materials to generate printing negatives and plates for use in actual printing production;
- a graphic artist or advertising agency, which could be a free-standing business or could be associated with either the primary customer or the prepress entity — and whose function was to generate, from a customer's instructions and other inputs, the camera-ready copy which would then become the prepress entity's input materials;
- a customer-service representative, ordinarily an individual associated with the printing or prepress house (often the proprietor or manager of that entity), who typically met at that entity's makeready room, or conference room, with the artist's or customer's representative to "show proof" — i. e., personally take from the makeready-room job bins and hand to that representative, for discussion, a preproduction specimen of the job, based on negatives (or plates) that had been readied for production of the finished piece;
- a courier, who simply carried the specimen physically from the prepress or printing house to the artist's or customer's representative in event the latter did not wish to travel to the prepress or printing facilities; and
- a buyer, who once again could be either a free-standing business (sometimes denominated a "printing broker"), or who could be associated with the primary customer or with the graphic artist or ad agency — and whose function was to select and negotiate with, most commonly on behalf of the primary customer, suitable printing and prepress institutions for the kind and scope of job to be printed.

[0004] Most of these classical categories of participants survive to the present day. Sea changes, however, have arrived with the electronic age — more specifically with its character as a so-called "information age", and especially with the advent of wide-area networks in general and the Internet in particular, and the Worldwide Web, and the now-familiar concept of a "website".

(b) Websites, and other FTP sites — As is well known in this field, the acronym "FTP" means "file

transfer protocol". FTP is a standard procedure for operation of two computers, commonly but not necessarily remote from each other, to copy a computer file from one of the machines to the other.

[0005] The data may pass through the Internet, or through another type of network such as but not necessarily a private network. Alternatively FTP data may pass through a peer-to-peer telephone connection — or even simply a direct cable — between the two computers.

[0006] People skilled in this field will understand that an FTP site or in particular a website enables a user in control of the connection to copy data in one direction or the other, or possibly in both directions. A website is in essence a special case of an FTP site, namely one to which connection is made through the Internet, using its Worldwide Web capabilities.

[0007] A website or other FTP site ordinarily encompasses some sort of user interface, but this may be of a very primitive type — for example, responding only to simple typed-in FTP syntax as through a DOS or Unix console application. Thus for purposes of the present document such a site does not necessarily provide GUI interactions, or even full-screen DOS or Unix data-reading and data-entry functions, although modernly a GUI format is extremely common and popular.

[0008] FTP sites are usually automatic — that is, in normal operation largely free from human intervention. For present purposes, however, most such sites require some level of security, authentication etc. All of that, if present, is considered part of the well-known infrastructure of the FTP site and associated network connections.

(c) The printing-broker ASP — One way in which the electronic age naturally modified the classical system was to undermine the position of the buyer or broker. The broker's major role was as a purveyor of accumulated information and wisdom about printing and prepress — in other words, as a guide and shepherd who conducted primary customers, in relative safety and surefootedness, to suitable production people.

[0009] The guide, however, extracted a relatively sizable toll (commission) for the guidance, which was a mixture of interpersonal skills with basic information about the industry. In an information age it has been natural for money to seek an alternative route.

[0010] Thus some computer-wise buyers or brokers undertook to gain an economic advantage over other buyers and brokers by automating the process. The familiar introductions, questions, answers and contractual arrangements were easy to convert into text, checkboxes and "FAQS" (frequently asked question-and-answer lists) in websites, and through use of this mechanism a single industry-experienced broker could easily service perhaps an order of magnitude greater clientele, at far lower cost to each customer.

[0011] Great variation in skill, communication, pricing and overall effectiveness is inevitable in such efforts, and many brokers and agents doubtless continue to operate in the classical manner. Their function has given way, however, to a new niche in the industry: a broker/agent "application service provider" or "ASP". (The acronym and therefore the terminology are likely derived, in that order, by analogy to the better-known "ISP", or Internet service provider — who simply receives telephone calls and automatically connects the callers to high-speed optic-fiber or cable Internet ports.)

[0012] This printing-broker ASP, or transactional ASP, or by abbreviation transASP serves a function very much akin to the traditional broker/agent function — but does so by inviting customers and printshops alike to come on-line electronically. While on-line they meet, negotiate, and do business with one another through a website intermediary and user interface (e. g., a graphical user interface, "GUI") protocol rather than through personally guided introductions and personally conducted negotiations.

(d) The proofer ASP — Another natural modification of the classical scheme arose from the classical industry custom called "showing proofs" (preproduction approximate samples of print jobs) — and the viewing and approving of those proofs. The earlier-mentioned Jodra patent document discusses this function at length, pointing out in particular that it is a central function related to the economics of allocating costs of error or disagreement.

[0013] At the same time, however, classically the viewing of hardcopy proofs itself generated very substantial costs — in travel by people whose time was expensive, and in delay, and even in additional disagreements. This process of showing proofs accordingly became another sensitive high-pressure point in the flow of money and other resources through the graphic-arts industry.

[0014] Various computerized proof-related workflow models have rapidly evolved in the natural seeking of lower impedances to the flow of work, time and cash. Since it is now common for customers to supply original artwork in the form of a computer data file, it is natural for a graphic artist, prepress or printing house to want to send back some kind of picture of how the finished job will appear.

[0015] The easiest way to do this is in the form of a set of image data files that can be displayed on a computer screen or monitor, showing with varying degrees of roughness how the makeready work has progressed. Such a file in many cases can be simply sent by e-mail to the customer or agent.

[0016] An incidental benefit has been to reduce the need for commitment of time and talent by the classical

customer-service representative mentioned above. Much of what that individual typically did can now be reduced, once again, to carefully drafted text and checkboxes in a website. With care, a personal touch can be maintained at this critical point, while both the enterprise and its customer enjoy improved efficiency and economics — without adverse effects on quality or competition, or survival of the small business entity.

[0017] Already a great deal of convention has grown up around this approach, in the nature of somewhat standardized image-presentation formats (e. g. the "portable document file" or "PDF" introduced by the Adobe company), and likewise somewhat standardized transaction summary formats (e. g. the "job definition file" or "JDF"). Printing out a PDF image on a computer printer is quite commonplace, but introduces myriad complications and still further sources of disagreement — and therefore many operators have focused on the far more straightforward process of showing proof on a computer monitor.

[0018] Since no hardcopy proof is involved, this type of proof is called a "soft proof" or sometimes even a "virtual proof". It is understood that in many ways what appears on the monitor is intrinsically different from what will appear eventually on some printing medium (such as paper), but such are the pressures of the industry that many participants are glad to accept such variations as a sufficient approximation.

[0019] In fact it is possible that the intrinsic differences are so obvious and striking that they actually defuse a large part of the complication that can arise in showing proofs. For example, the customer may perhaps be warned that "of course" colors and even proportions may appear "very" different from the finished product, and the proof is being shown only to give the customer a "rough" idea that the job is being assembled correctly.

[0020] Because of the very plain intrinsic differences of the self-luminous screen display with its vivid additive primaries and the purely reflective printed matter, rendered in subtractive primaries, customers and artists undoubtedly tend to discount and overlook relatively major differences. In this way, interestingly, many of the most difficult confrontations between printer/prepress and artist/customer may be simply sidestepped. Also interestingly, for many customers and even many artists this is sufficient.

[0021] Soft proofing is particularly useful and adequate at an earlier stage of project development when an artist or advertising agency is showing a concept proof to a customer or buyer. Here it is understood that the final colors, proportions, papers etc. are all only a matter of fine detail; and what is being shown is an original creative idea, fresh from the artistic mind and just first reduced to a tentative wording and layout. It is also usually understood that the final product will be subject to showing of a hardcopy proof.

[0022] In any event the preparation of even a virtual or soft proof is not without its hazards, and this stage of work has engendered another kind of application service provider: the proofing ASP. Such an entity is likely to start off in business with preparation and transmission of soft proofs, and negotiations over them — but perhaps in the nature of the business a proofing ASP tends to gravitate into preparation of hardcopy proofs as well, as customers inquire whether the ASP cannot provide something more permanent and more satisfying.

[0023] The proofing ASP typically enjoys an advantage of having a business outlet with geographical proximity to the primary customer or artist, and by dint of experience and professionalism can do a reasonably creditable job of making a hardcopy proof look generally similar to the anticipated eventual production piece. At this point, however, what is being shown is a printed item on a piece of printing medium that can be held in the hand — and not incidentally can be kept for comparison with what is later delivered.

[0024] Accordingly the customer and artist are much less willing to accept significant variations. The greater capability actually ups the ante as to what is demanded.

> (e) The e-transport ASP — The Internet, although initially it may have sparked much of the computer revolution in the graphic-arts industry, was neither the first nor the last computer network. Furthermore it was neither the first nor last service operated by most of its primary users over telephone connections — examples of particularly successful such services being in the field of legal caselaw research.

[0025] It is also natural that many users have found the Internet unsatisfactory for industrial purposes. The medium was almost pristine in its academic atmosphere as recently as fifteen years ago, but since its invasion by the Windows-driven general public the Internet has now become susceptible to excessive congestion and dropped connections. Particularly for relatively unsophisticated computer users in small businesses, the Internet is also now susceptible to massive proliferation of advertising, junk mail and other distractions from a businesslike procedure. Fast lines (digital service lines or cable) are not available everywhere.

[0026] Offering an escape from all such annoyances — and also offering ancillary services such as large-volume website storage, software escrow, and delivery follow-up — is the private-network ASP. This type of business focuses primarily upon maintaining and operating a reliable fast optic-fiber/coax-cable backbone between major hubs.

[0027] These capabilities are rapidly replacing the classical courier service. The trend is natural since what is to be moved from one place to another is already information in digital form; and the transportation of physical mass (e. g. paper) is fundamentally irrelevant to the transport of image information.

[0028] Some such businesses offer ample dial-up telephone numbers, as do the familiar ISPs. Some offer a

customer an on-site termination directly, or almost directly, to the backbone.

[0029] Through various migrations some private-net ASPs have become associated with one or another industry. The graphic-arts industry is one natural magnet for such association, since it supports a very large and steady flow of very large (megabyte and even gigabyte) files.

(f) ASP hybridization — Some ASPs in and servicing the graphic-arts industry have tended to acquire complementary ASP activities. For example, a private-network ASP may begin to offer specific soft-proofing support services — perhaps because of a bad experience with a graphic-arts customer who went down the street to visit a broker or soft proofer one day, discovered that the broker or proofer had a good deal with another network, and never came back.

[0030] Similarly a printing-industry transASP (e-broker) may begin to offer some limited form of proofing for its customers. The quieter reason may be to keep its customers from straying out of the fold to local graphic artists or local prepress shops that may have convenient proofing capabilities — but who may also want to divert the middleman function to their own channels.

[0031] Analogously a virtual-proofing ASP may begin to offer the so-called "digital asset management" more naturally expected of the private-net ASP. Once again the underlying motivation may be to offer the most comprehensive service possible, with an eye to minimizing a customer's motivation to wander out into the digital-asset-management marketplace and perhaps inadvertently stumble into a cheaper virtual-proof ASP.

[0032] Of course it is not intended to suggest that all ASP hybrids have developed from such protective instincts or specific negative experiences. Some are simply a matter of natural business expansion — into areas, for example, of inquiry from existing customers.

[0033] Nevertheless the phenomenon of vertical expansion among these ASP functions is surely driven in significant part by wariness. Time, talent and even money devoted to cultivating a good customer can evaporate quickly and devastatingly in the maximally competitive, extremely volatile and minimally loyal printing industry.

[0034] One may question, however, the overall efficiency and the primary-customer benefits of such integration. A first impact of this trend appears to be greater redundancy for each of the functions involved — and then an even-more-heightened competitiveness, in an industry already marked by low margins and a frenetic work ethic. In the end a resulting trend is to squeeze out small operators, who have traditionally tended to preserve the primary customer's options for diversity, enduring economy, and personal service.

[0035] Although a certain amount of copartnering is seen among some successful graphic-arts ASP enterprises, the cautionary character of the printing-business mind tends to deter full and fruitful exploitation of this healthy alternative to vertical expansion. This limited degree of copartnering may be seen as a significant problem in the printing industry.

[0036] Another deterrent, adding to the same problem in the industry, is a lack of full interoperability between different service ASPs. A certain degree of effort to build standards for linking various printing ASPs has been proposed in the trade, as for example in the PrintTalk Consortium, but this thrust has not been successful — at least not yet.

[0037] Furthermore it appears to focus most on e-commerce aspects, rather than technical aspects, of coventuring. That is, PrintTalk defines basically a protocol to perform print-job brokering — request for quote, quote, order and so forth.

[0038] Implementation of such proposals for interASP integration is strongly hindered by the present state of the art. The reason for this is that diverse so-called "job models" — or "life cycles", or "workflow management" designs — are barriers to interoperability. These terms are all in essence synonymous, and refer to the basic functions of knowing and changing either the status of a job (whether or not a proof is involved) or actions that can be taken in relation to a job.

[0039] For example, a remote-hardcopy-proofing ASP may not have a job model that supports closed-loop color proofing in which colors on the printing medium are objectively measured and checked. As another example, in order to job-out a single client's work to two different remote proofing ASPs, a transASP would have to somehow integrate different remote-proofing workflows with different job models.

[0040] These barriers are problematic. Increased copartnering would benefit not only the consumer (by fostering a healthy form of efficiency and a healthy degree of competition while deterring more-savage aspects of competition), but also the smaller operators in the field — by enabling them to compete more effectively without resorting to cutthroat strategies. Therefore, enhancement of stimuli to such coventuring efforts among complementary ASPs would be beneficial across the board.

[0041] An example of what is basically a graphic-arts transactional ASP is the company known as PrintCafe. Examples of businesses whose primary focus has been service as a virtual-proof ASP are RealTime Proof and the former Vio. An example of the private-net ASP is Wam!net.

[0042] Each of these three businesses has moved into aspects of the graphic-arts industry that overlap with the primary functions of one or both of the other two businesses.

(g) The hardcopy proofing service — Into the classical picture of the graphic-arts industry, the previously mentioned patent document of Jodra intro-

duced a new blend of technology and business relationships. One key characteristic of that new blend was a novel directionality of proofing-data flow between a prepress or printing house and a buyer or primary customer: the prepress/printing entity prepared a proofing data file containing not only image data as such but also embedded information about the production press on which the job was to be printed.

[0043] Remote proofing is also the topic of U. S. 6,043,909 and 6,157,735 of Richard A. Holub — though it seems with primary emphasis upon soft proofing. His patents focus on the mathematics of color science.

[0044] Holub recounts the known facts that it is possible to characterize the color-rendering details of proofing devices (and production printers as well) in a way that is perceptually based and mathematically general. He also reminds his readers that it is possible to invert such characterizations so that a proofing device can generate perceptually standardized, or nearly standardized, color appearances.

[0045] By simply aggregating such known methods Holub outlines how to operate production and proofing systems over a broad network so that color variations between proofs and production runs are minimized, and production of the same job at widely separated plants produces near-identical output. By virtue of this essentially conventional scheme, multiple production facilities can run duplicate portions of a very large, geographically disparate pressrun to minimize shipping distances, delays and costs.

[0046] Holub, however, says little about the dynamic of interplay between complementary enterprises, or of competition, within the printing business. Although the Jodra approach represented an important refinement of relationships among the classical participants in the industry, it too stopped short of dealing fully with the newly evolved application service providers discussed above.

(h) Software application interentity menu sharing Another known technology, not heretofore associated with remote hardcopy proofing services for the printing industry, is the modification of application menus of one business entity's user software, to incorporate menu items of another entity's complementary programs. Due to the modularity of modern programming, particularly in the graphical user interface (GUI) environment, such incorporation is usually straightforward and without disruption to operation of the host application. Below are commercially important examples relating to the extremely popular Word-Perfect® word-processing software.

[0047] A user of WordPerfect software who installs Lexis® legal-research software in the user's computer will find that certain Lexis program icons and dropdown menus thereafter appear within the WordPerfect menu — simplifying extraction of Lexis search results into WordPerfect documents. If a WordPerfect user installs MathType® software for generating mathematical equation images, subsequently a MathType program icon and dropdown menu appear in the user's WordPerfect menu to facilitate embedding MathType equation images into WordPerfect documents.

[0048] After installation of AddressMate® software, which operates a dedicated small serial printer for printing individual address labels, an AddressMate icon and dropdown menu then appear in the WordPerfect menu. Thereafter when the user drafts a coverletter for a package, the AddressMate software automatically undertakes to find the recipient address in that coverletter and copy it into a label format for automatic addressing of a corresponding package label on the attached serial printer.

[0049] Analogous installation of HotDocs® software, and automatic incorporation of a HotDocs® icon into WordPerfect menus enables a user to quickly and semiautomatically embed a HotDocs form commercial lease — or employment contract, or promissory note, or other legal form — into a WordPerfect document. In some cases these two-application integrations are by permission of the publisher of the preexisting host application (i. e. in the foregoing examples the publisher of the WordPerfect application) and perhaps even collaborative — being facilitated by assistance from the host publisher with necessary source code and programming recommendations to facilitate and optimize the integration.

[0050] Such collaborations sometimes prove so popular that the host publisher may include the satellite program (as with e. g. MathType) into later editions of the host application. In other cases such integrations may be essentially parasitic, a relatively benign form of commercial piracy — perhaps quietly overlooked by the host publisher when it appears that the incursion is beneficial to users and therefore garners additional profitable business for the host publisher.

[0051] For present purposes it is instructive to contrast the mutually beneficial commercial symbiosis of all such incorporations with the recent well-known struggle between legitimate and arguably illegitimate publishers in a wholly different industry: the music business. There the piracy of the seemingly renegade "Napster" enterprise undertook to convert and disperse the established value of thousands of copyrights with no benefit whatever to the original creative artists or their legitimate successors. Thus in the present context, though it is desirable to stimulate complementary ASP activities for the remote hardcopy-proofing art, it would be undesirable to do so by any mechanism that could facilitate piracy or like efforts to make off with the value of talented people and industrious enterprises.

(i) Conclusion — Accordingly, the prior art in the remote hardcopy-proofing field has failed to show the

way to effectively integrating the efforts of complementary ASPs, particularly in ways healthy for competition and consumers. This failing has continued to impede achievement of uniformly excellent remote proofing. Thus important aspects of the technology and business structures used in the field of the invention remain amenable to useful refinement.

SUMMARY OF THE DISCLOSURE

[0052] The present invention introduces such refinement. In its preferred embodiments, the present invention has several aspects or facets that can be used independently, although they are preferably employed together to optimize their benefits.

[0053] In preferred embodiments of a first of its facets or aspects, the invention is a remote proofing computer system. The system includes a closed-loop-color remote hardcopy proofing service (RHCPS).

[0054] The service provides an RHCPS user interface having data about a printing job to be hardcopy-proofed. From this phrasing, "having data about", people skilled in this field will understand that such an interface enables a user to read such data, or to enter such data — or possibly both, as appropriate.

[0055] The interface is not necessarily a Windows®-style or McIntosh®-style graphical user interface ("GUI"), although this may be preferred for its marketing advantages. Rather the interface may take any of a great variety of forms, especially including DOS- or Unix-style control screens with multiple data-display or -entry fields (but no icons or other elaborate graphics) — in the typical style of a classical DOS or Unix application.

[0056] The system also includes a graphic-arts application service provider (ASP). The ASP provides a remotely accessible ASP FTP site or website having data about its service — meaning, again, that such data can be copied to the site, or from it, or in appropriate cases both.

[0057] The RHCPS interface includes an RHCPS link to the ASP data, when an RHCPS user is also a user of the ASP. Thus, whether or not the FTP site or website itself provides a GUI or other high-level interface, when dealing with data transfers to or from the ASP the user typically (but not necessarily) enjoys the benefit of some formatting and interactivity provided by the RHCPS interface.

[0058] The foregoing may represent a description or definition of the first aspect or facet of the invention in its broadest or most general form. Even as couched in these broad terms, however, it can be seen that this facet of the invention importantly advances the art.

[0059] In particular, this aspect of the invention as just described provides a key feature that enables and facilitates solutions to the problem of effective and smooth cooperation or coventuring of complementary graphic-arts enterprises. As will be seen, this aspect of the invention tends to soften or remove coventuring barriers discussed earlier and ranging from distrust to simple interoperability mismatches. With these obstacles minimized, small and large enterprises alike — and consumers as well — benefit from a simpler and more efficient way of doing business that is thereby created.

[0060] Although the first major aspect of the invention thus significantly advances the art, nevertheless to optimize enjoyment of its benefits preferably the invention is practiced in conjunction with certain additional features or characteristics. In particular, preferably the closed-loop-color RHCPS is based on a printer device that prints and reads a calibration pattern, and that returns a calibration report to a user who is in a different location from that printer device.

[0061] Another preference is that the RHCPS link to the ASP data appear only if the ASP is an established copartner with the RHCPS. Still another basic preference is that, for each user, the link to the ASP data includes a visible tabulation of that user's graphic-arts jobs with the ASP. (As suggested earlier, the ASP interface as considered at this particular point need not be a GUI or even a multifield DOS/Unix screen for input and output, provided only that data elements within the ASP computer system are subject to reading or manipulation through control screens of the RHCPS.)

[0062] If the latter preference (i. e. a visible tabulation of the user's jobs with the ASP) is observed, then preferably the tabulation includes an active graphic-arts dialog window for addition or modification of that user's own graphic-arts jobs. In this case, then another preference in turn is that the modification in the graphic-arts dialog window include an option of deleting that user's own graphic-arts jobs.

[0063] Another subpreference to the basic visible-tabulation feature is that the RHCPS maintain data linking each RHCPS user to each ASP which has such a remotely accessible FTP site or website, and with which that user is registered. In this case, then — also preferably for each user — the RHCPS interface link to the ASP data appears only for an ASP with which that user is registered. A still-further subpreference, if this registration constraint is implemented, is that — for each particular job that a user has associated with an ASP — the RHCPS automatically routes proof reports and related details to the user through that ASP rather than to the user directly, unless the user specifically instructs the RHCPS to the contrary.

[0064] Another basic preference, i. e. applicable directly to the first main aspect of the invention, is that the ASP's FTP site or website include a user interface with the data about the ASP services. In this case, a subpreference is that the ASP interface include a link to the RHCPS interface when an ASP user is also an RHCPS user. In other words, this is a link going in the reverse direction relative to the previously discussed link from RHCPS to ASP.

[0065] If this reverse-link preference is put into effect,

then a hierarchy of further subpreferences is applicable: first, in the ASP interface, the link to the RHCPS interface preferably appears only if the RHCPS is an established copartner with the ASP. In this case then further preferably — for each user — the ASP interface link to the RHCPS interface includes a visible tabulation of that user's jobs that are subject to remote hardcopy proofing. If this is so, then in turn it is further preferable that the tabulation include an active remote-hardcopy-proofing (RHCP) dialog window for addition or modification of that user's own RHCP jobs. Yet further preferably, this modification in the dialog window includes an option of deleting that user's own RHCP jobs.

[0066] If the reverse-direction link is present, then in another hierarchy of preferences the ASP preferably maintains data linking that ASP's users to the RHCPS. In this case then also preferably for each user the RHCPS interface link to the ASP data appears only for an ASP with which that user is registered. If this is so, then also preferably for each particular job that a user has associated with the RHCPS, the ASP automatically routes proofing jobs from the user to the RHCPS rather than to another proofing entity, unless the user specifically instructs the ASP to the contrary.

[0067] Some additional basic preferences relate to types of users and other participants. First, preferably the RHCPS user interface and the ASP's FTP site or website are for operation by:

a primary customer, including but not limited to a publisher, printing customer, or printing client; or
a buyer representing a primary customer; or
a graphic artist; or
a printing broker; or
a user that is any hybrid of two or more of the preceding four user types.

[0068] An alternative basic preference, focusing instead on ASP types, is that the ASP is preferably:

a printing-brokerage ASP; or
a soft-proofing ASP; or
a private-network ASP; or
an ASP that is any hybrid of two or more of the preceding three ASP types.

[0069] In this ASP-type case, the RHCPS link to the ASP data also preferably includes access to further service of the ASP other than RHCPS procedures. If this is so, then further preferably the further service includes:

if the ASP is a printing-brokerage ASP (transASP) or hybrid thereof, service relating particularly to transactional matters;
if the ASP is a soft-proofing ASP or hybrid thereof, service relating particularly to generation, checking or approval of a soft proof; and
if the ASP is a private-network ASP or hybrid there of, service relating particularly to data trans mission or storage.

[0070] Other preferences, relative to the ASP-type basic preference, include these: if an RHCPS user is not an established user of any particular ASP (of any one type of the three ASP types or a hybrid thereof), then the RHCPS interface preferably includes an RHCPS link to data of all ASPs —

- which are established copartners with the RHCPS; or
- of that one type or hybrid, which are established copartners with the RHCPS.

[0071] In preferred embodiments of its second major independent facet or aspect, the invention is a computerized remote proofing method. It includes the step of operation, by a user, of a closed-loop-color remote hardcopy proofing service (RHCPS) user interface, to gain access to data about a printing job to be hardcopy-proofed.

[0072] It also includes the step of granting, by a graphic-arts application service provider (ASP), of access to data about the ASP's service. This step is in response to the user's activation of a link, within the RHCPS interface, to a user interface of the ASP. The RHCPS user is also a user of the ASP.

[0073] The foregoing may represent a description or definition of the second aspect or facet of the invention in its broadest or most general form. Even as couched in these broad terms, however, it can be seen that this facet of the invention importantly advances the art.

[0074] In particular, this aspect of the invention calls for complementary behavior, on part of the ASP, to system establishment and operation of the RHCPS itself. More specifically this is a first one of two distinctly different kinds of complementary function provided by the ASP — this first kind being simple access, for an ASP user, to the ASP's own data (but through the RHCPS).

[0075] As suggested earlier, for purposes of this first kind of ASP cooperation, the ASP's interface can be very simple, even limited to type-in console-application syntax. That is because this mode of operation can depend on the RHCPS to provide for a nice presentation. On the other hand, as will be seen in the "DETAILED DESCRIPTION" section, this minimalist arrangement is not a requirement; i. e. the ASP if desired may provide the data preformatted in the ASP's own customized GUI or multifield-DOS/Unix presentation, which may be as elaborate as desired.

[0076] Although the second major aspect of the invention thus significantly advances the art, nevertheless to optimize enjoyment of its benefits preferably the invention is practiced in conjunction with certain additional